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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/630,756	07/31/2003	Bogdan Kosanovic	TI-36133	8450
23494	7590	07/13/2007		
TEXAS INSTRUMENTS INCORPORATED P O BOX 655474, M/S 3999 DALLAS, TX 75265			EXAMINER HURL, JOSEPH P	
			ART UNIT 2129	PAPER NUMBER
			NOTIFICATION DATE 07/13/2007	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

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<p align="center"><b>Office Action Summary</b></p>	<p>Application No.</p> <p align="center">10/630,756</p>	<p>Applicant(s)</p> <p align="center">KOSANOVIC ET AL.</p>	
	<p>Examiner</p> <p align="center">Joseph P. Hirl</p>	<p>Art Unit</p> <p align="center">2129</p>	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 March 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. Claims 1-22 are pending. The second claim 17 was cancelled. Original claims 22 and 23 were renumbered consistent with the original sequence. The second claim 17 was added as the new claim 22.

### ***Claim Rejections - 35 USC § 101***

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claims 1-22 are rejected under 35 U.S.C. § 101 for nonstatutory subject matter. The subject claims fail to provide a tangible result with a practical application by either:

- 1) transforming (physical thing); or
- 2) by having the FINAL RESULT (not the steps) achieve or produce  
a useful (specific, substantial, and credible),  
concrete (substantially repeatable/non-unpredictable), and  
tangible (real world/non-abstract)  
result.

A claim that is so broad that it reads on both statutory and non-statutory subject matter, must be amended. If the specification discloses a practical application but the claim is broader than the disclosure such that it does not require practical application,

then the claim must be amended. A claim that recites a computer that solely calculates a mathematical formula is nonstatutory.

The courts have also held that a claim may not preempt ideas, laws or nature or natural phenomena. The concern over preemption was expressed as early as 1852. See Le Roy v. Tatham, 55 U.S. (14How.) 156, 175 (1852) ("A principle, in the abstract, is a fundamental truth; an original cause; a motive; these cannot be patented, as no one can claim in either of them an exclusive right."); Funk Bros. Seed Co. v. Kalo Inoculant Co., 333 U.S. 127, 132, 76 USPQ 280, 282 (1948).

Accordingly, one may not patent every "substantial practical application" of an idea, law of nature or natural phenomena because such a patent "in practical effect would be a patent on the [idea, law of nature or natural phenomena] itself." "Here the "process" claim is so abstract and sweeping as to cover both known and unknown uses of the BCD to pure-binary conversion. The end use may (1) vary from the operation of a train to verification of drivers' licenses to researching the law books for precedents and (2) be performed through any existing machinery or future-devised machinery or without any apparatus." Gottschalk v. Benson, 409 U.S. 63, 71-72, 175 USPQ 673, 676 (1972).

The courts have found that subject matter that is not a practical application or use of an idea, a law of nature or a natural phenomenon is not patentable. As the Supreme Court has made clear, "[a]n idea of itself is not patentable," Rubber-Tip Pencil Co. v Howard, 20 U.S. (1 Wall.) 498, 507 (1874); taking several abstract ideas

and manipulating them together adds nothing to the basic equation. In re Warmerdam, 31 USPQ2d 1754 (Fed. Cir. 1994).

4. The claims generally limit to an abstract concept such as instances of functions, processing resources which are signals, fuzzy inference systems, membership functions, and echo canceller instance which is a signal. ¶ 0003 of the specification relates the invention to intelligent management of processing functions via scheduling control of multiple instances using fuzzy logic. The claims and/or the specifications must identify results that are practical applications. Simply, neither the claims nor the specification identify a practical application.

5. Claims 1-22 are rejected under 35 U.S.C. § 101 for nonstatutory subject matter. "Processing resources" are synonymous with "signals" which are merely a form of energy, per se, and are nonstatutory phenomena. O'Reilly, 56 U.S. (15 How) at 112-14.

### ***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1-22 are rejected under 35 U.S.C. 102(a) as being anticipated by Breining (IEEE, 1063-6676/01, A Robust Fuzzy Logic-Based Step-Gain Control for Adaptive Filters in Acoustic Echo Cancellation, referred to as **Breining**).

**Claim 1**

Breining anticipates identifying, in said system, a plurality of instances of said functions that use processing resources (**Breining**, p162, c1:10-12; Examiner's Note (EN): ¶ 11 applies; "processing resources" are signals); and determining, with a fuzzy inference system, an importance of at least one of said instances (**Breining**, p163, c2:28-48).

**Claims 2, 14**

Breining anticipates preventing starvation of one of said function instances by determining a recent time period that said processing resources were allocated to said instance function (**Breining**, p164, c1:1-7; EN: the stated limitation is just another way of describing the concept of feedback).

**Claims 3, 15**

Breining anticipates preventing starvation of one of said function instances by determining a recent time period where said instance function contains signal energy that would allow an execution of one of said instance (**Breining**, p164, c1:1-7; EN: the stated limitation is just another way of describing the operation of feedback).

**Claims 4, 16**

Breining anticipates fuzzification of a plurality of inputs by said fuzzy inference system (**Breining**, p163, c2:28-48).

**Claims 5, 17**

Breining anticipates fuzzification of a plurality of inputs by said fuzzy inference system (**Breining**, p163, c2:28-48).

**Claims 6, 18(partial)**

Breining anticipates defining a plurality of rules for scaling an output of said fuzzy inference system (**Breining**, p163, c2:28-48).

**Claims 7, 18(partial), 20**

Breining anticipates aggregating a plurality of said scaled outputs into a single fuzzy output variable, wherein said output determines said importance of said instance function (**Breining**, p164, Fig. 1).

**Claims 8, 21**

Breining anticipates ordering, with a scheduling priority fuzzy inference system, said instances to receive said processing resources (**Breining**, p164, c1:1-9; EN: such would be the adjustment in  $a(k)$  when the precursor coefficients are likely to fail ... priority).

**Claims 9, 19**

Breining anticipates determining an amount of the processing resources available for distribution to each of the function instances (**Breining**, p164, c1:1-21); and allocating the available processing resources to the function instances according to said ordering (**Breining**, p164, c1:1-21).

**Claim 10**

Breining anticipates identifying a plurality of echo canceller instance functions that use said processing resources (**Breining**, p162, c1:10-32; p163, c28-48); and said determining comprises determining said importance of at least one of said echo canceller instance functions using said fuzzy inference system (**Breining**, p162, c1:10-32; p163, c28-48; p164, c1:1-21).

**Claim 11**

Breining anticipates fuzzification of a plurality of echo cancellation inputs by said fuzzy inference system (**Breining**, p162, c1:10-32; p163, c28-48).

**Claim 12**

Breining anticipates updating a local state information storage with a plurality of echo canceling instance events (**Breining**, p162, c1:10-12); determining, from the local state information storage, the available processing resources for said echo canceller instance functions (**Breining**, p162, c1:10-12); and allocating available processing resources to the echo canceller instance functions according to the importance of said instance functions (**Breining**, p162, c1:10-12).

**Claim 13**

Breining anticipates a function ordering module, comprising a fuzzy inference system, to determine an importance of at least one of said function instances using said fuzzy inference system (**Breining**, p163, c2:28-48); and a resource allocator to allocate processing resources to said function instances (**Breining**, p163, c2:28-48; EN: such as a defuzzification unit).



**Claim 22**

Breining anticipates processing resources to the echo canceller instance functions according to said importance (**Breining**, p162, c1:10-32).

***Analysis of Claims***

8. The claims and only the claims form the metes and bounds of the invention.

"Office personnel are to give the claims their broadest reasonable interpretation in light of the supporting disclosure. *In re Morris*, 127 F.3d 1048, 1054-55, 44USPQ2d 1023, 1027-28 (Fed. Cir. 1997). Limitations appearing in the specification but not recited in the claim are not read into the claim. *In re Prater*, 415 F.2d, 1393, 1404-05, 162 USPQ 541, 550-551 (CCPA 1969)" (MPEP p 2100-8, c 2, I 45-48; p 2100-9, c 1, I 1-4). The Examiner has full latitude to interpret each claim in the broadest reasonable sense. Examiner will reference prior art using terminology familiar to one of ordinary skill in the art. Such an approach is broad in concept and can be either explicit or implicit in meaning.

9. Examiner's Notes are provided with the cited references to prior art to assist the applicant to better understand the nature of the prior art, application of such prior art and, as appropriate, to further indicate other prior art that maybe applied in other office actions. Such comments are entirely consistent with the intent and spirit of compact prosecution. However, and unless otherwise stated, the Examiner's Notes are not prior

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art but a link to prior art that one of ordinary skill in the art would find inherently appropriate.

10. Unless otherwise annotated, Examiner's statements are to be interpreted in reference to that of one of ordinary skill in the art. Statements made in reference to the condition of the disclosure constitute, on the face of it, the basis and such would be obvious to one of ordinary skill in the art, establishing thereby an inherent prima facie statement.

11. Examiner's Opinion: ¶¶ 8.-10. apply. The Examiner has full latitude to interpret each claim in the broadest reasonable sense.

### ***Conclusion***

12. The prior art of record and not relied upon is considered pertinent to applicant's disclosure.

- Romesburg, USPN 6,185,300
- Romesburg, USPN 6,301,357
- Ryu et al., Double Talk Detection in adaptive Echo Cancellor using the Fuzzy Logic
- Ryu et al., Convergence Implement of adaptive Lattice algorithm with Fuzzy Based adaptive Gain

13. Claims 1-22 are rejected.

***Correspondence Information***

14. Any inquiry concerning this information or related to the subject disclosure should be directed to the Primary Examiner, Joseph P. Hirl, whose telephone number is (571) 272-3685. The Examiner can be reached on Monday – Thursday from 6:00 a.m. to 4:30 p.m.

As detailed in MPEP 502.03, communications via Internet e-mail are at the discretion of the applicant. Without a written authorization by applicant recorded in the applicant's file, the USPTO will not respond via e-mail to any Internet correspondence which contains information subject to the confidentiality requirement as set forth in 35 U.S.C. 122. A paper copy of such correspondence will be placed in the appropriate patent application. The following is an example authorization which may be used by the applicant:

Notwithstanding the lack of security with Internet Communications, I hereby authorize the USPTO to communicate with me concerning any subject matter related to the instant application by e-mail. I understand that a copy of such communications related to formal submissions will be made of record in the applications file.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, David R. Vincent can be reached at (571) 272-3080.

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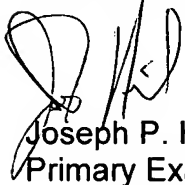
Alexandria, Virginia 22313,

(located on the first floor of the south side of the Randolph Building);

or faxed to:

(571) 273-8300 (for formal communications intended for entry.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have any questions on access to Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll free).



Joseph P. Hirl  
Primary Examiner  
June 26, 2007